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Appl. No. 09/910,604
Reply to Office Action of July 26, 2006

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously Presented) A solid-state image apparatus comprising:

an image section having a plurality of pixels arranged two dimensionally in the horizontal direction and in the vertical direction,

the image section comprising a first area formed of a first pixel group and a second area formed of a second pixel group, and the first area and the second area being disposed adjacent to each other in the horizontal direction;

a first electric-charge transfer section disposed outside the image area for transferring the signal electric charges of the first area in the horizontal direction;

a second electric-charge transfer section extending across the entire width of the image section and disposed outside the image area for transferring the signal electric charges of the second area in the horizontal direction; and

driving means for driving the first and second electric-charge transfer sections in an identical direction,

wherein the first and second electric-charge transfer sections are disposed such that the first electric-charge transfer section transfers only the signal electric charges of the first area and the second electric-charge transfer section transfers only the signal electric charges of the second area; and

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further comprising a vertical transfer section for transferring the signal electric charges of the second area to the second electric-charge transfer section without passing through the first electric-charge transfer section,

wherein the first electric-charge transfer section is disposed between the first area and the second electric-charge transfer section, and

wherein the vertical transfer section is disposed between the second area and the second electric-charge transfer section, and

wherein all of the pixels in any one column of said image section to be read out of the solid-state image apparatus are transferred to only one of said first electric-charge transfer section and said second electric-charge transfer section.

2. (Original) A solid-state image apparatus according to Claim 1, wherein the driving means drives the first and second electric-charge transfer sections by an identical driving signal.

3. - 4. (Cancelled)

5. (Previously Presented) A solid-state image device comprising:
an image section having a plurality of pixels arranged two dimensionally in the horizontal direction and in the vertical direction,

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the image section comprising a first area formed of a first pixel group and a second area formed of a second pixel group, and the first area and the second area being disposed adjacent to each other in the horizontal direction;

a first electric-charge transfer section disposed outside the image area for transferring the signal electric charges of the first area in the horizontal direction;

a second electric-charge transfer section extending across the entire width of the image section and disposed outside the image area for transferring the signal electric charges of the second area in the horizontal direction; and

a vertical transfer section for transferring the signal electric charges of the second area to the second electric-charge transfer section,

wherein the first electric-charge transfer section is disposed between the first area and the second electric-charge transfer section, and

the vertical transfer section is disposed between the second area and the second electric-charge transfer section, and

wherein all of the pixels in any one column of said image section to be read out of the solid-state image apparatus are transferred to only one of said first electric-charge transfer section and said second electric-charge transfer section.

6. (Previously Presented) A driving method for a solid-state image device, the solid-state image device having: an image section having a plurality of pixels arranged two dimensionally in the horizontal direction and in the vertical direction, the image section having a first area formed of a first pixel group and a second area formed of a second pixel

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group, and the first area and the second area being disposed adjacent to each other in the horizontal direction; a first electric-charge transfer section disposed outside the image area for transferring the signal electric charges of the first area in the horizontal direction; and a second electric-charge transfer section extending across the entire width of the image section and disposed outside the image area for transferring the signal electric charges of the second area in the horizontal direction, the driving method comprising:

a step of transferring the signal electric charges of the first area to the first electric-charge transfer section;

a step of transferring the signal electric charges of the second area to the second electric-charge transfer section without passing through the first electric-charge transfer section; and

a step of driving the first and second electric-charge transfer sections in an identical direction to output signal charges; and

further comprising transferring the signal electric charges of the second area to the second electric-charge transfer section without passing through the first electric-charge transfer section via a vertical transfer section thereby transferring the signal electric charges of the second area to the second electric-charge transfer section without passing through the first electric-charge transfer section,

wherein the first electric-charge transfer section is disposed between the first area and the second electric-charge transfer section, and

wherein the vertical transfer section is disposed between the second area and the second electric-charge transfer section, and

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wherein all of the pixels in any one column of said image section to be read out of the solid-state image apparatus are transferred to only one of said first electric-charge transfer section and said second electric-charge transfer section.

7. (Previously Presented) A camera system comprising:

a solid-state image apparatus,

the solid-state image apparatus comprising:

an image section comprising a plurality of pixels arranged two dimensionally in the horizontal direction and in the vertical direction, the image section comprising a first area formed of a first pixel group and a second area formed of a second pixel group, and the first area and the second area being disposed adjacent to each other in the horizontal direction;

a first electric-charge transfer section disposed outside the image area for transferring the signal electric charges of the first area in the horizontal direction;

a second electric-charge transfer section extending across the entire width of the image section and disposed outside the image area for transferring the signal electric charges of the second area in the horizontal direction;

driving means for driving the first and second electric-charge transfer sections in an identical direction; and

a vertical transfer section for transferring the signal electric charges of the second area to the second electric-charge transfer section;

an optical system for guiding incident light to the image section of the solid-state image apparatus; and

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a signal processing circuit for combining output signals of the solid-state image apparatus to generate a signal corresponding to signal electric charges of one line in the image section,

wherein the first electric-charge transfer section is disposed between the first area and the second electric-charge transfer section, and

the vertical transfer section is disposed between the second area and the second electric-charge transfer section, and

wherein all of the pixels in any one column of said image section to be read out of the solid-state image apparatus are transferred to only one of said first electric-charge transfer section and said second electric-charge transfer section.

8. (Cancelled).

9. (Previously Presented) A solid-state image apparatus comprising:

an image section having a plurality of pixels arranged two dimensionally in the horizontal direction and in the vertical direction,

the image section comprising a first area formed of a first pixel group and a second area formed of a second pixel group, and the first area and the second area being disposed adjacent to each other in the horizontal direction;

a first electric-charge transfer section disposed outside the image area for transferring the signal electric charges of the first area in the horizontal direction;

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a second electric-charge transfer section extending across the entire width of the image section and disposed outside the image area for transferring the signal electric charges of the second area in the horizontal direction; and

driving means for driving the first and second electric-charge transfer sections in an identical direction,

wherein the first and second electric-charge transfer sections are disposed such that the first electric-charge transfer section transfers only the signal electric charges of the first area and the second electric-charge transfer section transfers only the signal electric charges of the second area; and

further comprising a vertical transfer section for transferring the signal electric charges of the second area to the second electric-charge transfer section without passing through the first electric-charge transfer section,

wherein the first electric-charge transfer section is disposed between the first area and the second electric-charge transfer section, and

wherein the vertical transfer section is disposed between the second area and the second electric-charge transfer section, and

wherein the electric charges of said first area are transferred directly from said first area to said first electric-charge transfer section without passing through any additional vertical transfer section between the first image area and the first electric-charge transfer section.

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Please add the following new claims:

10. (New) The solid-state image apparatus according to claim 9, further wherein said first pixel group comprising said first area are comprised of a first plurality of immediately adjacent pixels in both the vertical and horizontal direction; and said second pixel group comprising said second area are comprised of a second plurality of immediately adjacent pixels in both the vertical and horizontal direction.

11. (New) A solid-state image apparatus comprising:

an image section having a plurality of pixels arranged two dimensionally in the horizontal direction and in the vertical direction,

the image section comprising a first area formed of a first pixel group and a second area formed of a second pixel group, said first pixel group is comprised of a first plurality of immediately adjacent pixels in both the vertical and horizontal direction; and said second pixel group is comprised of a second plurality of immediately adjacent pixels in both the vertical and horizontal direction, the first area and the second area being disposed adjacent to each other in the horizontal direction;

a first electric-charge transfer section disposed outside the image area for transferring the signal electric charges of the first area in the horizontal direction;

a second electric-charge transfer section extending across the entire width of the image section and disposed outside the image area for transferring the signal electric charges of the second area in the horizontal direction; and

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driving means for driving the first and second electric-charge transfer sections in an identical direction,

wherein the first and second electric-charge transfer sections are disposed such that the first electric-charge transfer section transfers only the signal electric charges of the first area and the second electric-charge transfer section transfers only the signal electric charges of the second area; and

further comprising a vertical transfer section for transferring the signal electric charges of the second area to the second electric-charge transfer section without passing through the first electric-charge transfer section.

12. (New) A solid-state image apparatus comprising:

an image section having a plurality of pixels arranged two dimensionally in the horizontal direction and in the vertical direction,

the image section comprising a plurality of areas each comprised of a group of pixels, each group of pixels is comprised of a plurality of immediately adjacent pixels in both the vertical and horizontal direction; the plurality of areas being arranged adjacent in the horizontal and/or vertical direction;

a plurality of electric-charge transfer sections disposed outside the image area for transferring the signal electric charges of each of the plurality of areas, respectively, in the horizontal direction, wherein at least one of the electric-charge transfer sections extends across the entire width of the image section; and

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driving means for driving the plurality of electric-charge transfer sections in an identical direction,

wherein the plurality of electric-charge transfer sections are disposed such that each electric-charge transfer section transfers only the signal electric charges of one of said plurality of areas.

13. (New) The solid-state image apparatus according to claim 1, wherein the second electric charge transfer section extending across the entire width of the image section is positioned adjacent said first charge transfer section such that an output for the first charge transfer section is substantially immediately adjacent an output for the second charge transfer section.

14. (New) The solid-state image apparatus according to claim 9, wherein the second electric charge transfer section extending across the entire width of the image section is positioned adjacent said first charge transfer section such that an output for the first charge transfer section is substantially immediately adjacent an output for the second charge transfer section.

15. (New) The solid-state image apparatus according to claim 1, wherein the first electric charge transfer section does not extend across the entire width of the image section.

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16. (New) The solid-state image apparatus according to claim 9, wherein the first electric charge transfer section does not extend across the entire width of the image section.

17. (New) The solid-state image apparatus according to claim 12, wherein the remaining electric charge transfer sections of said plurality of electric charge transfer sections, besides said at least one electric-charge transfer section which extends across the entire width of the image section, do not extend across the entire width of the image section.